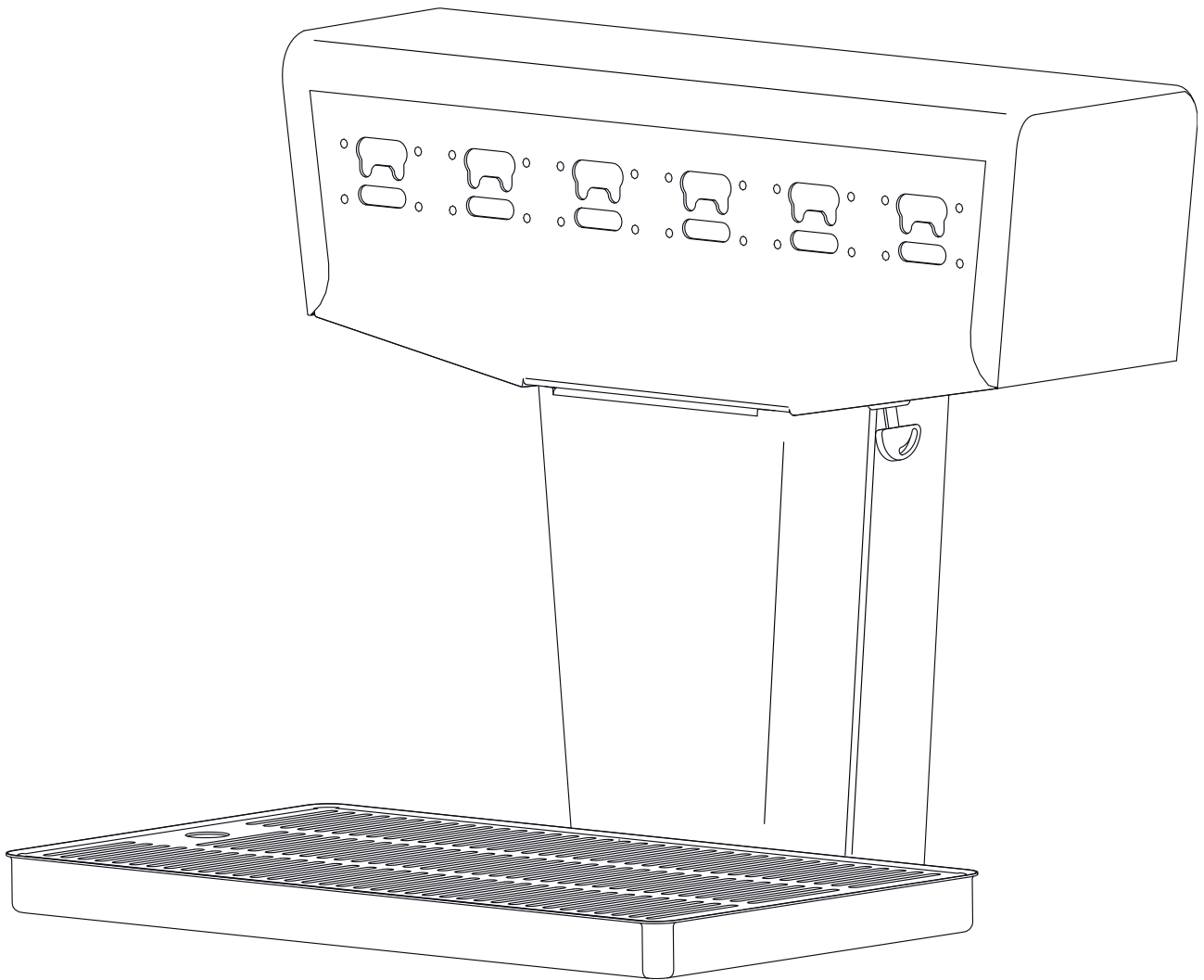


# Installation and service manual



Tower

Nueva



## Legal notice

Installation and service manual (Translation of the original manual)

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Tower  
Unit ID no. 220096999

Nueva

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### NOTICE!

This unit comes with a complete installation and service manual for the dispensing valves used in the unit. The manual may also be downloaded from the website below or requested as a printed copy from the address below.

---

# Installation and service manual

## Tower

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# 1 Safety

## 1.1 Intended use

By using the unit as intended you will not only protect yourself, but also prevent damage occurring to the unit and its components! You can find further information about the intended use of the unit in the tower operator manual, document no. TD0003000.

## 1.2 Improper use

Improper use of the unit and unauthorised modifications to the unit and its components may cause personal injury and equipment damage for which Cornelius Deutschland GmbH shall assume no liability. Improper use of the unit is prohibited.

You can find further information about the improper use of the unit – and the meaning of improper use – in the tower operator manual, document no. TD0003000.

## 1.3 Staff

There is a clear definition as to what group of people is permitted to carry out what type of work on the unit. You can find further information about who is authorised to carry out what type of work on the unit in the tower operator manual, document no. TD0003000.

## 1.4 Presentation of warnings

The documents supplied with the unit provide warnings regarding any dangers or hazards that might exist. You can find more information about the design and presentation of warnings in the tower operator manual, document no. TD0003000.

## 1.5 Safety information

### 1.5.1 Safety information to prevent personal injury and equipment damage

Any work on the unit and its components which goes beyond operation and beyond the servicing and maintenance tasks that the operator is authorised for, may only be performed by **experts** (for a definition of experts, see the tower operator manual, document no. TD0003000). Furthermore, it is crucial that when performing work on the unit all safety information is observed; this information is set out in the following sections. Some of the tasks may have additional safety information which highlights the specific dangers or hazards associated with such work.

### 1.5.2 Safety information for using electrical assemblies



#### **DANGER!**

To prevent risks to health and safety, please always observe the following five safety rules:

These five safety rules are to be applied before carrying out work on the electrical system and in the order stated below. Once work is completed, the safety rules are to be undone again in reverse order.

- 1. Disconnect from power.
  - 2. Secure against reconnection.
  - 3. Check that the system is disconnected from power.
  - 4. Ground and short-circuit the system.
  - 5. Cover or separate adjacent live parts.
- 



#### **WARNING!**

##### **Risk of burns when touching hot parts of the unit!**

Touching parts of the unit after it has been in continuous use over an extended period of time will result in a risk of burns.

- Take appropriate safeguard measures, such as by wearing heat-resistant protective gloves.
- 



#### **NOTICE!**

- Make sure that the cable markers are not removed from the cables and/or mark or label the cables such that they can be correctly assigned during installation.
- 



#### **ATTENTION!**

##### **Cables must be fixed in place using cable ties.**

When fixing cables in place using cable ties, observe the following points:

- Once work on the unit is completed, return the area to the same state that you found it in.
  - Using cable ties, combines cables in a meaningful way.
  - When installing cables, be mindful of any bending radiuses that the manufacturer may have specified.
  - To fix cables in place using cable ties, use the mounting bases provided.
-

## 2 Transport and packaging

Choose a suitable packaging when returning the unit itself or one of its components to Cornelius Deutschland GmbH, e.g. for repairs. In particular, make sure that the unit and any components are protected from shock/impact, moisture, dirt and electrostatic discharge (ESD). This will prevent transport damage to the unit and to the components, for which the manufacturer shall assume no liability.

### 2.1 Storage

Avoid excessive temperature fluctuations as condensate may form, which in turn may cause damage to the unit or to the components.

The permissible storage temperature is -10 °C to +50 °C.

The acclimatisation period is 6 hours.



#### ATTENTION!

##### Damage due to improper storage!

Dirt or moisture entering a unit, as well as certain weather conditions (e.g. condensate forming in the unit, sunlight) will cause damage to the unit and its components.

- Protect the unit and its components by storing the unit in a clean and dry place, and by ensuring stable ambient conditions.
  - If possible, store the unit in its original packaging. Unpacked units must be covered with a dustproof cover. No condensate must form under the cover.
- 



#### ATTENTION!

##### Risk of electrostatic charge!

Improper handling or storage may result in electrostatic charges.

- If possible, store units and/or any electronic components in their original packaging.
  - Keep units and/or electronic components away from charged objects, fields and insulators.
  - Avoid electrostatic charges when removing packaging and/or handling electronic assemblies and components by working at an ESD-protected workstation or work area.
  - When working at the unit or its components, wear a grounding (antistatic) wrist strap at the very least and wear antistatic gloves if necessary.
- 



#### ATTENTION!

##### Component damage due to material ageing!

Material can age due to long storage periods, thereby affecting the material's properties (e.g. plastics and seals may become brittle). The properties of lubricants may change due to long storage periods.

- Check the assemblies and components for damage before each use/before installing them. Do not install assemblies or components that show visible signs of ageing.
- 



#### ATTENTION!

##### Component damage due to freezing liquids!

Ambient temperatures that are below freezing will lead to the freezing of any water or cleaning agent residue remaining inside the unit. This will lead to damage to internal components.

- Before shipment, storage or relocation of the unit, the unit is to be cleaned and the cleaning solution is to be fully drained from the unit.
- 

### 2.2 Disposal

Disposal of the units must be carried out in compliance with the applicable local and/or national and international regulations. Units must not be disposed of with household waste.

If the unit contains fuels or lubricants in liquid, paste-like or gaseous form, such as oil, grease, cooling agents etc., such fuels or lubricants are to be collected using appropriate measures and disposed of in compliance with the applicable local and/or national and international regulations. Such fuels or lubricants must always be prevented from seeping into the ground, the sewage system and any bodies of water, and must always be prevented from entering the atmosphere.

### 3 Description

#### 3.1 Tower

The unit comprises the following assemblies:

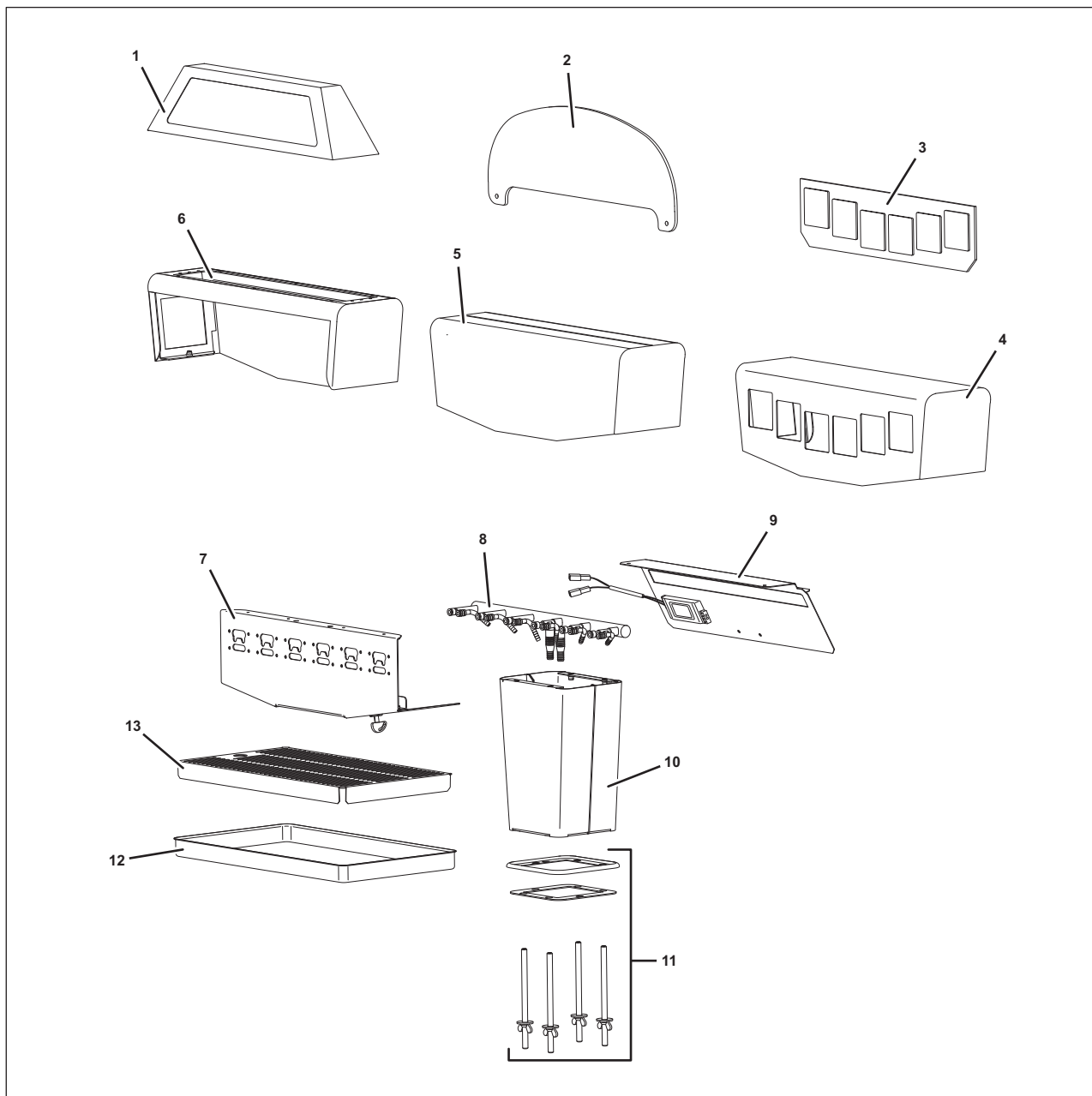


Fig. 1

- |  |                             |
|--|-----------------------------|
| 1 Taxi cab hood with promotional sign              | 8 Soda dispenser (optional) |
| 2 Moonlight disc                                   | 9 Lighting kit              |
| 3 Plexiglas sheet for the product labels           | 10 Stand                    |
| 4 Hood for the product labels                      | 11 Counter mounting kit     |
| 5 Hood for the moonlight disc                      | 12 Drip tray                |
| 6 Hood for the taxi cab hood with promotional sign | 13 Grill                    |
| 7 Dispensing valve support                         |                             |

#### 3.2 Dispensing valves



##### NOTICE!

Information on the dispensing valves installed on your unit can be found in the binding documentation for the respective dispensing valve.

### 3.3 Functions within the dispensing system


**NOTICE!**

The description of how the unit works within the dispensing system is included in the relevant operator manual for this unit; see the document "Tower operator manual", document no. TD0003000.

### 3.4 Functions of the unit

Each individual beverage type is dispensed by opening the valve assigned to the respective beverage component in each respective dispensing valve.

The valves are controlled in accordance with the buttons on the control panels, which are pressed on the respective dispensing valve, or the dispensing lever.


**NOTICE!**

Information on the dispensing valves installed on your unit can be found in the binding documentation for the respective dispensing valve.

### 3.5 Technical data

#### 3.5.1 Tower

Description	Parameter	Value	Unit
Dimensions	Height	375 – 510 (14.8 – 20.1)	mm (inches)
	Width	452 – 587 (17.8 – 23.1)	mm (inches)
	Depth incl. drip tray	346 (13.6)	mm (inches)
Ambient temperature	Storage	-10 to +50	°C
	Operating environment	+10 to +32	°C
Power supply	Supply voltage	24	V AC
	Frequency	50 – 60	Hz
Power input <sup>1</sup>	max.	100	W
Current consumption <sup>1</sup>	max.	4	A
Supply requirements	Max. pressure	0.35 (water) 0.49 (syrup, sugar) 0.25 (syrup, diet)	MPa
	Min. pressure	0.17 (water) 0.42 (syrup, sugar) 0.21 (syrup, diet)	MPa
Protection class		III / IP 21	
Flow rate	Depending on dispensing valve design		
Python length <sup>2</sup>	max.	50	m
Postmix	Depending on unit type	5 – 8	pcs.
Still water	Depending on unit type	1 – 4	pcs.
Key switch		I/O	
Sound emission		< 65	dB (A)

1. Dispensing to four dispensing valves simultaneously

2. Depending on the refrigerating unit



### 3.5.2 Connections

Connection	Type/connection assignment		
	with soda dispenser	without soda dispenser	
Carbonated water inlet	3/8 inch ID <sup>1</sup> , 1/2 inch OD <sup>2</sup>	10 mm ID, 15 mm OD	3/8 inch ID, 1/2 inch OD
Carbonated water return	3/8 inch ID, 1/2 inch OD	10 mm ID, 15 mm OD	3/8 inch ID, 1/2 inch OD
Still water inlet	1/4 inch ID, 3/8 inch OD	6 mm ID, 9.5 mm OD	1/4 inch ID, 3/8 inch OD
Postmix inlets	1/4 inch ID, 3/8 inch OD	6 mm ID, 9.5 mm OD	1/4 inch ID, 3/8 inch OD
Cable 220097434	Power supply to the tower		
Cable 220046597	Power supply to the voltage transformer for the lighting kit		

1. ID = inside diameter

2. OD = outside diameter

## 4 Preparing the unit



### DANGER!

#### Risk of personal injury and equipment damage due to non-compliance with safety information!

Failure to observe the safety information will result in a risk of bringing about operating conditions at the unit, which may cause personal injury or equipment damage.

- Please always strictly observe all safety measures and information/instructions; see chapter 1.

This chapter describes the tasks that may be required before carrying out any actual maintenance or repair work.



### DANGER!

You may only continue working on the unit if the unit carries no voltage.

If the unit still carries a voltage after you have disconnected it from power, this indicates a defect. Resolve this defect before continuing the checks/inspections or any work.

### 4.1 Disconnecting the unit from power

Required tools/materials	ID/reference	Qty/ amount	Comment
Tower cable diagram	220046720	1	see chapter 11.1
Undercounter cooler cable diagram	Various	1	

1. Turn the key switch (Fig. 2/1) to position "0".
2. Disconnect the electrical cable (Fig. 2/3) (cable no. 220097434) on the transformer (Fig. 2/2) in the undercounter cooler.
3. Wait 1 minute before continuing your work on the unit.

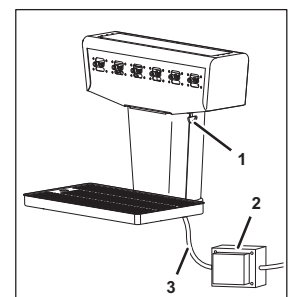


Fig. 2

## 5 Installation/removal



### DANGER!

#### Risk of personal injury and equipment damage due to non-compliance with safety information!

Failure to observe the safety information will result in a risk of bringing about operating conditions at the unit, which may cause personal injury or equipment damage.

- Please always strictly observe all safety measures and information/instructions; see chapter 1.
- 



### NOTICE!

All installation, maintenance and repair work at the unit is to be carried out by an expert only.

---



### WARNING!

#### Risk of personal injury and equipment damage due to operation by non-qualified staff!

It is dangerous for non-qualified staff to operate the unit!

- Service operations on this unit may only be carried out by trained and certified experts who have been trained in carrying out service operations on this unit.
  - All wiring and plumbing must be carried out in compliance with national and local laws, regulations and guidelines. Non-compliance with these laws, regulations and guidelines may result in death, serious injury or equipment damage.
- 

### 5.1 Installation location



### NOTICE!

Observe all rules and regulations regarding installation rooms and electric connections as applicable in the individual countries, as well as accident prevention regulations.

---



### WARNING!

#### Risk of death due to insufficient load capacity!

If the unit is installed in a location with insufficient load capacity, this can result in serious injuries and damages!

- Install the unit at or on an installation location that offers a load capacity of min. 100 lbs (approx. 45 kg) remaining for this unit.
- 



### NOTICE!

Many units include additional equipment, such as an ice maker. When using additional equipment, it is mandatory to check with the equipment manufacturer as to how much additional weight the product can accommodate while still ensuring safe installation.

---

The unit must be set up and installed close to an earthed mains socket. The electric circuit must be fuse-protected, and no additional units or devices must be connected to the electric circuit.

All connections and outlets/drains must comply with the applicable local and/or national and international regulations.

The unit must be set up on a horizontal surface.

## 5.2 Preparing the installation location

Prerequisites		References	
The load capacity of the supporting structure must be at least that of the weight of the unit.			
There must be no objects at the installation location that might get in the way.			
The installation location must offer easy access to the unit, assemblies and components.			
Required tools/materials	ID/reference	Qty/amount	Comment
Drill template	143532168	1	
Pen/pencil		1	
Scissors or knife		1	
Hole punch		1	
Compass saw		1	
Power drill		1	
Drill bit	Ø 10 mm	1	
Hole saw	Ø 85 mm	1	
Socket spanner		1	
Silicone RTV		1	

1. Use drill templates only in their original size.
2. Draw the drill template onto the supporting structure.
3. Drill the holes for the threaded bolts into the supporting structure as indicated on the drill template.
4. Saw the opening for the tubes and cables into the supporting structure as indicated on the drill template.
5. Remove any dirt or dust from the supporting structure.

## 5.3 Installing the unit

Prerequisites		References	
The unit has been unpacked.		See the document "Tower operator manual", document no. TD0003000	
Preparation of the installation location is complete.		see chapter 5.2	
Required tools/materials	ID/reference	Qty/amount	Comment
Counter mounting kit	139403528	1	
Tower cable diagram	220046720	1	see chapter 11.1
Undercounter cooler cable diagram	Various	1	
Operator manual Tower	Document no. TD0003000	1	
Undercounter cooler installation and service manual	Document no. Various	1	



### DANGER!

#### Risk of personal injury and equipment damage due to non-compliance with rules and regulations!

Risk of death in the case of non-compliance with rules and regulations regarding connection of the water supply!

- In accordance with the current state of the art, install the water supply on the product using an air gap protection back flow system, a vacuum control valve or some other method that has proved effective during tests. Installation must be carried out in compliance with all federal, state and local laws.
- Water pipe connections and fixtures that are directly connected to the drinking water supply must be installed and serviced in compliance with federal, state and local laws.

1. Attach the threaded bolts (Fig. 3/1), on the stand (Fig. 3/3) of the unit, by screwing the threaded bolts into the stand (Fig. 3/3).

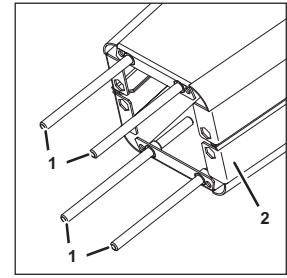


Fig. 3

2. Position the gasket (Fig. 4/1) on the stand (Fig. 4/2) of the unit.

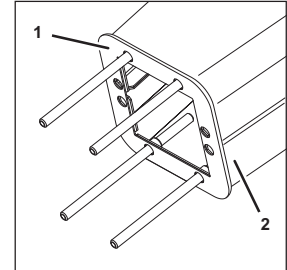


Fig. 4

3. Feed the tubes and cables through the opening into the supporting structure in a downward motion.
4. Place the unit onto the prepared supporting structure.

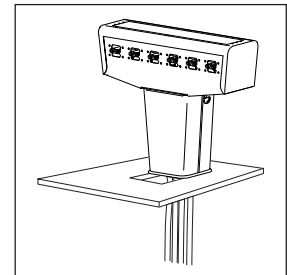


Fig. 5

5. Position the sealing plate (Fig. 6/1) against the supporting structure.

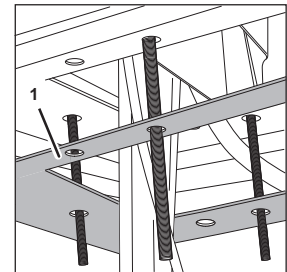


Fig. 6

6. Attach the unit to the supporting structure using threaded bolts (Fig. 7/3), wing nuts (Fig. 7/1) or nuts and washers (Fig. 7/2), and tighten the wing nuts or nuts evenly. Check that the unit is properly attached. After attachment, the unit must not tilt or overturn.

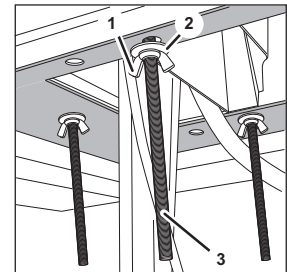


Fig. 7

7. Remove the caps from all tubes.
8. Connect all tubes (Fig. 8/1) to the python (Fig. 8/2).  
Observe the labels on each individual tube as you connect the tubes.
9. Properly insulate the tubes.

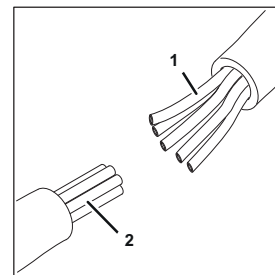


Fig. 8

10. Position the drip tray (Fig. 9/3) with grill on the unit; see chapter 7.1.
11. Connect the electrical cable (Fig. 9/2) to the transformer (Fig. 9/1) in the undercounter cooler.
12. Put the unit into service ("commissioning"); see chapter 8.1.

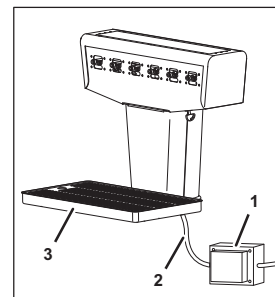


Fig. 9

## 5.4 Removing the unit

Prerequisites		References	
The undercounter cooler has been shut down.		See the document "Undercounter cooler installation and service manual"	
The unit has been shut down.		see chapter 4.1	
The drip tray has been removed.		see chapter 7.1	
Required tools/materials	ID/reference	Qty/amount	Comment
Tower cable diagram	220046720	1	see chapter 11.1
Undercounter cooler installation and service manual	Document no. Various	1	

1. Disconnect the electrical cable (Fig. 10/2) on the transformer (Fig. 10/1) in the undercounter cooler.

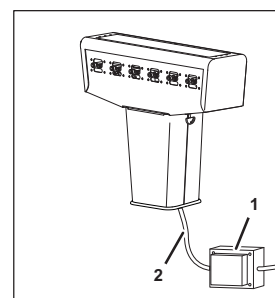


Fig. 10

2. Disconnect all tubes (Fig. 11/1) from the python (Fig. 11/2).
3. Attach a cap to each tube.

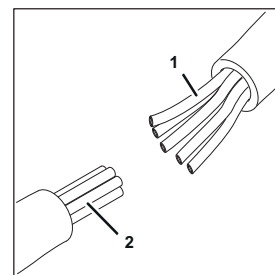


Fig. 11

4. Remove the wing nuts (Fig. 12/2) or nuts, washers (Fig. 12/3) and sealing plate (Fig. 12/1) from the threaded bolts (Fig. 12/4) used to attach the unit to the supporting structure.

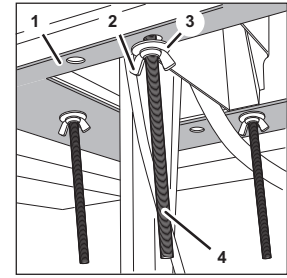


Fig. 12

5. Lift and remove the unit from the supporting structure.
6. Pull out the tubes and cables through the opening of the supporting structure in an upward motion.

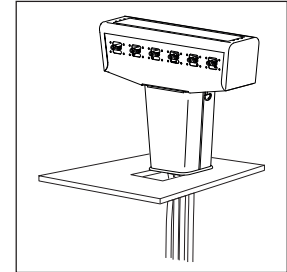


Fig. 13

7. Remove the gasket (Fig. 14/1) on the stand (Fig. 14/2) of the unit.

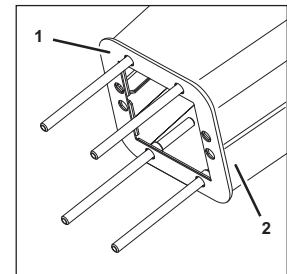


Fig. 14

8. Remove the threaded bolts (Fig. 15/1), on the stand (Fig. 15/3) of the unit, by unscrewing the threaded bolts from the stand (Fig. 15/3).
9. Pack the unit as described in chapter 2.

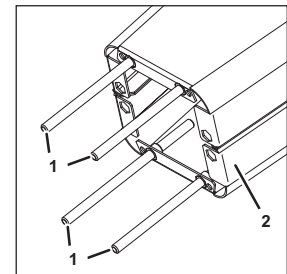


Fig. 15

## 5.5 Still water option

For units with built-in soda dispensers, there is an option of converting the soda dispensers to still water in order to dispense non-carbonated beverages at individual dispensing valves.

The procedure is described here using the connection of a soda dispenser as an example.



### NOTICE!

- For units with 5 or 6 dispensing valves, the still water option is only available on the last three dispensing valves on the right.
- For units with 8 dispensing valves, the still water option is only available on the last four dispensing valves on the right.

Prerequisites		References	
The hood has been removed.		see chapter 7.6	
The dispensing valve to be assigned the still water option has been removed.		See dispensing valve documentation	
Spare parts	ID/reference	Qty/amount	Comment
Locking screw	220094713	a. n. <sup>1</sup>	
Nozzle	149837500	a. n.	Metric connections
Nozzle	318971000	a. n.	Inch-based connections
Tubing clamp	440000306	a. n.	
Seal for locking screw	317015000	a. n.	6.07 x 1.78

1. a. n. = as needed

1. Remove the connection (Fig. 16/1) from the soda dispenser (Fig. 16/2).

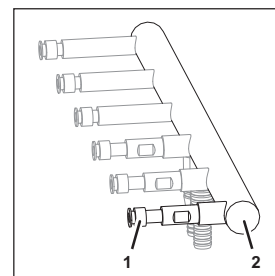


Fig. 16

2. Place the seal (Fig. 17/3) over the locking screw (Fig. 17/4) and close the connection (Fig. 17/2) of the soda dispenser (Fig. 17/1) using the locking screw (Fig. 17/4).

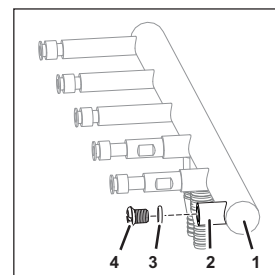


Fig. 17

3. If available, attach to an unused tube (Fig. 18/3) of the python a nozzle (Fig. 18/1) and attach the tube (Fig. 18/3) using a clamp (Fig. 18/2) to the nozzle (Fig. 18/1).  
Otherwise, install a new tube (Fig. 18/3) in the python.
4. Position the still water tube within the dispensing valve support.
5. Insulate the soda dispenser and the still water tube.
6. If applicable, connect the still water tube to the undercounter cooler; see the document "Undercounter cooler installation and service manual".

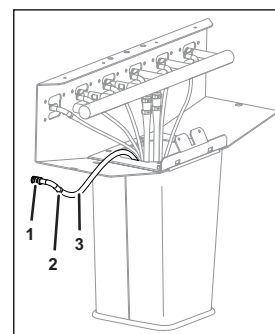


Fig. 18

### Finishing tasks

1. Install the hood; see chapter 7.6.
2. Mount the dispensing valve; see the dispensing valve documentation.

## 6 Maintenance



### DANGER!

#### Risk of personal injury and equipment damage due to non-compliance with safety information!

Failure to observe the safety information will result in a risk of bringing about operating conditions at the unit, which may cause personal injury or equipment damage.

- Please always strictly observe all safety measures and information/instructions; see chapter 1.



### NOTICE!

All installation, maintenance and repair work at the unit is to be carried out by an expert only.



### WARNING!

#### Risk of personal injury and equipment damage due to operation by non-qualified staff!

It is dangerous for non-qualified staff to operate the unit!

- Service operations on this unit may only be carried out by trained and certified experts who have been trained in carrying out service operations on this unit.
- All wiring and plumbing must be carried out in compliance with national and local laws, regulations and guidelines. Non-compliance with these laws, regulations and guidelines may result in death, serious injury or equipment damage.

### 6.1 Maintenance table



### NOTICE!

The following table provides information on recommended maintenance intervals to be adapted to the relevant installation situation.

Interval	Components	Action
Daily	Tower, outside	Perform a visual inspection. See the document "Tower operator manual", document no. TD0003000
Daily	Tower, outside	Clean. See the document "Tower operator manual", document no. TD0003000
Every 3 months	Tower, inside	Clean the tubes/valves; see chapter 6.2



## 6.2 Cleaning the tubes and valves

Prerequisites		References	
The outside of the unit has been cleaned.		See the document "Tower operator manual", document no. TD0003000	
Required tools/materials	ID/reference	Qty/amount	Comment
Disinfectant	103050300	a. n. <sup>1</sup>	TM DesanaMay fp – Alkaline (syrup) - active oxygen - chlorine-free – Powder 45 g (1 sachet) per 4.5 litres of water – Dyed
Disinfectant	220112962	a. n.	TM Desanacid fp – Acid (water) - active oxygen - chlorine-free – Powder 45 g (1 sachet) per 4.5 litres of water – Dyed
Disinfectant	Hydrogen peroxide	a. n.	– Acid (water) – Max. 3% solution – 135 ml per 4.5 litres of water – Colourless
Test strips	220100192	a. n.	For testing the content of hydrogen peroxide
Clear water			
Cleaning container		1	
Tower operator manual	Document no. TD0003000	1	
Undercounter cooler installation and service manual	Document no. Various	1	
Dispensing valve documentation	Document no. Various	1	

1. a. n. = as needed

- Fill the cleaning container (Fig. 19) with water.
- Disconnect all basic ingredient tubes/beverage tubes from the input of the undercounter cooler; see the document "Undercounter cooler installation and service manual".
- Connect all basic ingredient tubes/beverage tubes to the cleaning container (Fig. 19).
- Rinse all tubes with water, one after the other, by requesting a beverage from the respective dispensing valve; see dispensing valve documentation.
  - Continue requesting a beverage until the water coming out of the dispensing valve runs clear.

You can only continue to the next step if and when all tubes have been rinsed with water. In the next step, the tubes will be rinsed with a disinfectant solution.
- Fill the cleaning container with a suitable disinfectant solution.
  - For syrup tubes: TM DesanaMax fp.
  - For water lines: either TM Desanacid fp or hydrogen peroxide.
- Vent the carbonator tank; see the document "Undercounter cooler installation and service manual".
- Rinse all tubes with the disinfectant solution, one after the other, by requesting a beverage from the respective dispensing valve; see dispensing valve documentation.
  - Continue requesting a beverage for the syrup tubes until you can see the disinfectant solution, recognisable by its dye, coming out of the dispensing valve.
  - Using TM Desanacid fp as a disinfectant for the water lines, continue requesting a beverage until you can see the disinfectant solution, recognisable by its dye, coming out of the dispensing valve.
  - Using hydrogen peroxide as a disinfectant for the water lines, continue requesting a beverage until you can determine hydrogen peroxide levels using a test strip.

Make sure that the tubes remain exposed to the disinfectant solution for a minimum of 15 minutes. You can only continue to the next step if and when all tubes have been rinsed with the disinfectant solution. In the next step, the tubes will be rinsed with clear water.
- Depressurise the cleaning container and the tubes by using the pressure relief valve on the cleaning container.
- Fill the cleaning container with clear water.

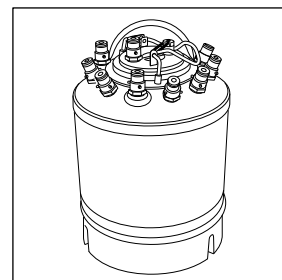


Fig. 19

10. Rinse all tubes with water, one after the other, by requesting a beverage from the respective dispensing valve; see dispensing valve documentation.
  - Continue requesting a beverage for the syrup tubes until the water coming out of the dispensing valve runs clear.
  - Using TM Desanacid fp as a disinfectant for the water lines, continue requesting a beverage until the water coming out of the dispensing valve runs clear.
  - Using hydrogen peroxide as a disinfectant for the water lines, continue requesting a beverage until you can no longer detect any hydrogen peroxide levels using test strips.

You can only continue to the next step if and when all tubes have been rinsed with water.  
In the next step, the tubes of the unit will either be filled, see step 9, or the unit will be shut down, see chapter 8.2.
11. Depressurise the cleaning container and the tubes by using the pressure relief valve on the cleaning container.
12. Disconnect all basic ingredient/beverage tubes of the undercounter cooler from the cleaning container.
13. Connect all basic ingredient/beverage tubes to the undercounter cooler; see the document "Undercounter cooler installation and service manual".
14. Fill the tubes by requesting a beverage from the respective dispensing valve until the beverage is being dispensed; see dispensing valve documentation.

## 7 Repairs



### **DANGER!**

#### **Risk of personal injury and equipment damage due to non-compliance with safety information!**

Failure to observe the safety information will result in a risk of bringing about operating conditions at the unit, which may cause personal injury or equipment damage.

- Please always strictly observe all safety measures and information/instructions; see chapter 1.
- 



### **NOTICE!**

All installation, maintenance and repair work at the unit is to be carried out by an expert only.

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### **WARNING!**

#### **Risk of personal injury and equipment damage due to operation by non-qualified staff!**

It is dangerous for non-qualified staff to operate the unit!

- Service operations on this unit may only be carried out by trained and certified experts who have been trained in carrying out service operations on this unit.
  - All wiring and plumbing must be carried out in compliance with national and local laws, regulations and guidelines. Non-compliance with these laws, regulations and guidelines may result in death, serious injury or equipment damage.
-

## 7.1 Replacing the drip tray and the grill

Spare parts	ID/reference	Qty/amount	Comment
Drip tray incl. grill	149854401	1	Dimensions (L x W x H) 400 mm x 220 mm x 28 mm
	149854601	1	Dimensions (L x W x H) 600 mm x 220 mm x 28 mm

1. Remove the grill from the drip tray.
2. Remove the drip tray from the unit.

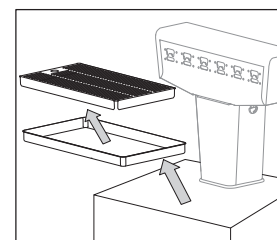


Fig. 20

3. Position the new drip tray.
4. Insert the new grill in the drip tray.

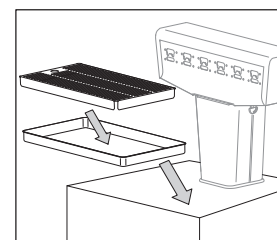


Fig. 21

## 7.2 Replacing the dispensing valves



### NOTICE!

Information regarding the replacement of the dispensing valves installed on your unit can be found in the binding documentation for the respective dispensing valve.

## 7.3 Replacing the taxi cab hood and the promotional sign

Prerequisites	References
The unit has been disconnected from the power supply.	see chapter 4.1

Spare parts	ID/reference	Qty/amount	Comment
Taxi promotional sign	220097166S002	2	Neutral
Taxi cab hood	220097356	1	Smoothed
	220097357	1	Polished
Double-sided tape	Various		

1. Remove the fastening bolts (Fig. 22/3) from the hood (Fig. 22/2).
2. Lift and remove the hood (Fig. 22/2) with taxi cab hood (Fig. 22/1) from the unit.

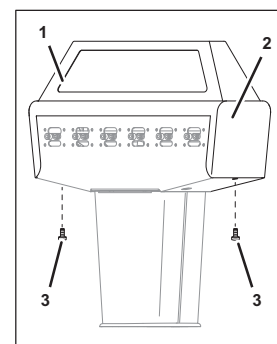


Fig. 22

3. Remove the fastening bolts (Fig. 23/1) from the taxi cab hood (Fig. 23/2).

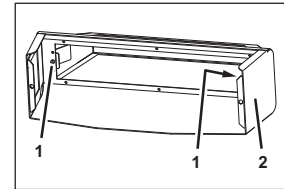


Fig. 23

4. Lift and remove the taxi cab hood (Fig. 24/1) from the hood (Fig. 24/2).

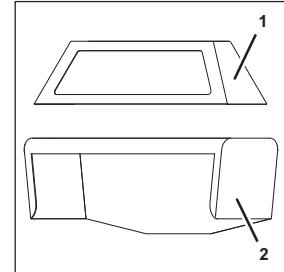


Fig. 24

5. Remove the promotional sign (Fig. 25/1) from the taxi cab hood (Fig. 25/2).

6. Remove any adhesive residue from the taxi cab hood (Fig. 25/2).

7. Apply fresh double-sided tape along the adhesive area (Fig. 25/3) inside the taxi cab hood (Fig. 25/2).

8. Position the promotional sign (Fig. 25/1) within the taxi cab hood (Fig. 25/2).

9. Press the promotional sign (Fig. 25/1) into the taxi cab hood (Fig. 25/2).

10. Position the new taxi cab hood (Fig. 24/1) on the hood (Fig. 24/2).

11. Attach the taxi cab hood (Fig. 23/1) using the fastening bolts (Fig. 23/1).

12. Position the hood (Fig. 22/2) with taxi cab hood (Fig. 22/2) on the unit.

13. Attach the hood (Fig. 22/2) using the fastening bolts (Fig. 22/3).

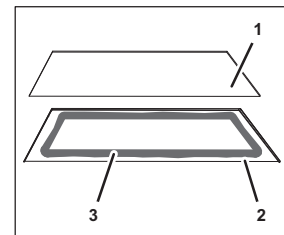


Fig. 25

## 7.4 Replacing the moonlight disc

Prerequisites		References	
The unit has been disconnected from the power supply.		see chapter 4.1	
Spare parts	ID/reference	Qty/amount	Comment
Moonlight disc	Various	1	Please contact your service partner for the part number of the moonlight disc installed on your unit
Mounting bracket	220097377	2	
Double-sided tape	Various		

1. Remove the fastening bolts (Fig. 26/3) from the hood (Fig. 26/2).

2. Lift and remove the hood (Fig. 26/2) with moonlight disc (Fig. 26/1) from the unit.

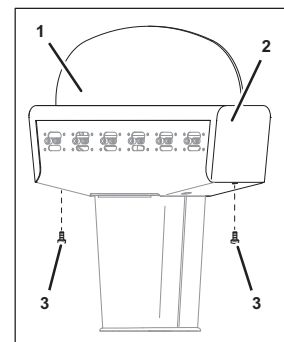


Fig. 26

- Remove the fastening bolts (Fig. 27/2) from the moonlight disc (Fig. 27/1).

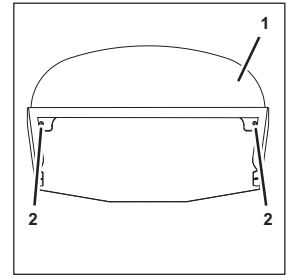


Fig. 27

- Lift and remove the moonlight disc (Fig. 28/1) from the hood (Fig. 28/2).
- If required, attach new mounting brackets (Fig. 27/2) within the hood (Fig. 28/2) using double-sided tape.
- Position the new moonlight disc (Fig. 28/1) on the hood (Fig. 28/2).
- Attach the moonlight disc (Fig. 27/1) using the fastening bolts (Fig. 27/2).
- Position the hood (Fig. 26/2) with moonlight disc (Fig. 26/2) on the unit.
- Attach the hood (Fig. 26/2) using the fastening bolts (Fig. 26/3).

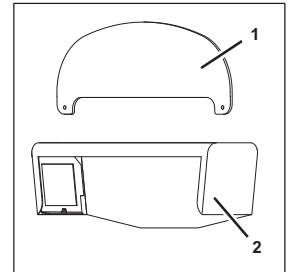


Fig. 28

## 7.5 Replacing the Plexiglas sheet for the product labels

Prerequisites		References	
The unit has been disconnected from the power supply.		see chapter 4.1	
Spare parts	ID/reference	Qty/amount	Comment
Plexiglas sheet	220096741	1	6 product areas for 5 + 6 dispensing valves
	220097370	1	8 product areas for 8 dispensing valves
Double-sided tape	Various		

- Remove the fastening bolts (Fig. 29/2) from the hood (Fig. 29/1).
- Lift and remove the hood (Fig. 29/1) from the unit.

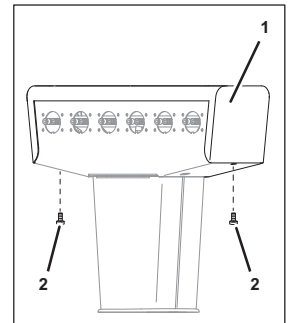


Fig. 29

- Remove the Plexiglas sheet (Fig. 30/2) from the hood (Fig. 30/1).

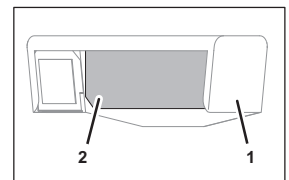


Fig. 30

- Remove any adhesive residue from the hood (Fig. 31/1).
- Apply fresh double-sided tape along the adhesive area (Fig. 31/2) inside the hood (Fig. 31/1).
- Position the new Plexiglas sheet (Fig. 31/3) in the hood (Fig. 31/1).
- Press the Plexiglas sheet (Fig. 31/2) into the hood (Fig. 31/2).
- Position the hood (Fig. 29/1) with Plexiglas sheet (Fig. 29/2) on the unit.
- Attach the hood (Fig. 29/1) using the fastening bolts (Fig. 29/2).

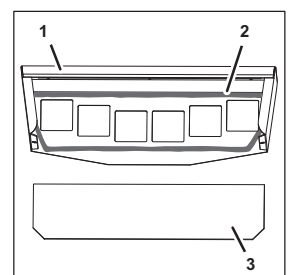


Fig. 31

## 7.6 Replacing the hood

Prerequisites		References	
The unit has been disconnected from the power supply.		see chapter 4.1	
Spare parts	ID/reference	Qty/amount	Comment
Hood	Various	1	For the part number of the hood installed on your unit, see chapter 10



### NOTICE!

Multiple configuration options for the hood of the unit, with and without promotional displays, are available. Replacing the hood is identical for all hoods and is described here analogously using an example.

1. Remove the fastening bolts (Fig. 32/2) from the hood (Fig. 32/1).
2. Lift and remove the hood (Fig. 32/1) from the unit.
3. Remove and install any promotional displays that might be installed.
  - Taxi cab hood with promotional sign; see chapter 7.3.
  - Moonlight disc; see chapter 7.4.
  - Product labels; see chapter 7.5.
4. Position the new hood (Fig. 32/1) on the unit.
5. Attach the hood (Fig. 32/1) using the fastening bolts (Fig. 32/2).

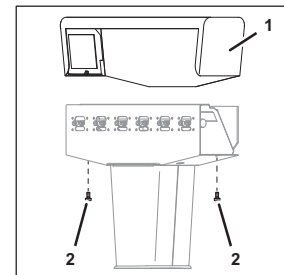


Fig. 32

## 7.7 Replacing the lighting kit

Prerequisites		References	
The hood has been removed.		see chapter 7.6.	
Spare parts	ID/reference	Qty/amount	Comment
Lighting kit	220112230	1	<ul style="list-style-type: none"> <li>- Taxi cab hood with promotional sign, 5 + 6 dispensing valves</li> <li>- Moonlight disc, 5 + 6 dispensing valves</li> <li>- Product labels, 5 + 6 dispensing valves</li> </ul>
Lighting kit	220112231	1	<ul style="list-style-type: none"> <li>- Taxi cab hood with promotional sign, 8 dispensing valves</li> <li>- Moonlight disc, 8 dispensing valves</li> </ul>
Lighting kit	220112232	1	<ul style="list-style-type: none"> <li>- Product labels, 8 dispensing valves</li> </ul>
Lighting kit	220112233	1	<ul style="list-style-type: none"> <li>- Taxi cab hood with promotional sign and product labels, 5 + 6 dispensing valves</li> <li>- Moonlight disc and product labels, 5 + 6 dispensing valves</li> </ul>
Lighting kit	220112234	1	<ul style="list-style-type: none"> <li>- Taxi cab hood with promotional sign and product labels, 8 dispensing valves</li> <li>- Moonlight disc and product labels, 8 dispensing valves</li> </ul>



### NOTICE!

Multiple lighting kit variants are available for the unit. Replacing the lighting kit is identical for all lighting kits and is described here using an example.

The lighting kit comprises the following components:

- Retaining plate
- LED strip
- Voltage transformer

1. Remove the fastening bolts (Fig. 33/1) from the retaining plate (Fig. 33/2).
2. To the extent permitted by the electrical cables, lift the retaining plate (Fig. 33/2) from the unit.

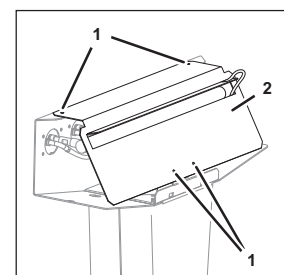


Fig. 33

3. Disconnect the plugs (Fig. 34/1) for the electrical cable (cable no. 220046597) of the voltage transformer (Fig. 34/2).
4. If necessary, replace the LED strip and the voltage transformer; see chapter 7.8.
5. Connect the plugs (Fig. 34/1) for the electrical cable (cable no. 220046597) of the voltage transformer (Fig. 34/2).
6. Position the retaining plate (Fig. 33/2) on the unit.
7. Attach the retaining plate (Fig. 33/2) using the fastening bolts (Fig. 33/1).

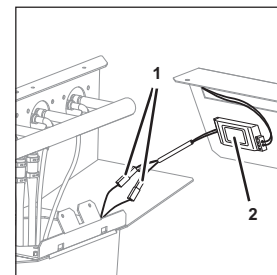


Fig. 34

#### Finishing tasks

1. Install the hood; see chapter 7.6.

## 7.8 Replacing the LED strip and the voltage transformer

Prerequisites		References	
The lighting kit has been removed.		see chapter 7.7.	
Spare parts	ID/reference	Qty/amount	Comment
LED strip (length: 350 mm)	220112125	1	– Taxi cab hood with promotional sign, 5 - 8 dispensing valves – Moonlight disc, 5 - 8 dispensing valves – Product labels, 6 dispensing valves
LED strip (length: 2 x 350 mm each)	220113473	1	– Taxi cab hood with promotional sign and product labels, 5 + 6 dispensing valves – Moonlight disc and product labels, 5 + 6 dispensing valves
LED strip (length: 450 mm)	220112038	1	– Product labels, 8 dispensing valves
LED strip (length: 350 mm)	220113474	1	– Taxi cab hood with promotional sign and product labels, 8 dispensing valves
(length: 450 mm)		1	– Moonlight disc and product labels, 8 dispensing valves
Voltage transformer	141647698	1	
Velcro tape	Various		



#### NOTICE!

Multiple LED strip variants are available for illuminating the promotional displays of the unit. Replacing the LED strip and voltage transformer is identical for all variants and is described here using an example.

1. Disconnect the electrical cables (cable no. 220112125) (Fig. 35/2) of the LED strip from the voltage transformer (Fig. 35/1).

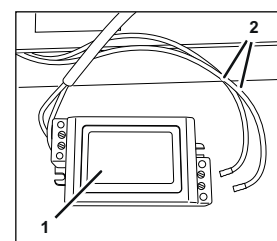


Fig. 35

2. Remove the LED strip (Fig. 36/2) from the retaining plate (Fig. 36/1).
3. Remove any adhesive residue from the retaining plate (Fig. 36/1).

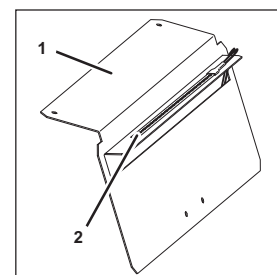


Fig. 36

4. Remove the voltage transformer (Fig. 37/2) from the retaining plate (Fig. 37/1).
5. Apply Velcro tape to the new voltage transformer (Fig. 37/2).
6. Position the voltage transformer (Fig. 37/2) on the retaining plate (Fig. 37/1).
7. Press the voltage transformer (Fig. 37/2) into the retaining plate (Fig. 37/1).
8. Apply the new LED strip (Fig. 36/2) to the adhesive area on the retaining plate (Fig. 36/1).
9. Connect the electrical cables (cable no. 220112125) (Fig. 35/2) of the LED strip to the voltage transformer (Fig. 35/1).

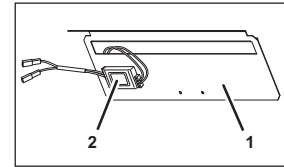


Fig. 37

#### Finishing tasks

1. Install the lighting kit; see chapter 7.7.

## 7.9 Replacing the key switch

Prerequisites		References	
The hood has been removed.		see chapter 7.6.	
Spare parts	ID/reference	Qty/amount	Comment
Key switch with electrical cable	070000005	1	

1. Disconnect the electrical cable (Fig. 38/2) of the key switch (Fig. 38/1).
2. Remove the nut (Fig. 38/3).
3. Remove the key switch (Fig. 38/1)

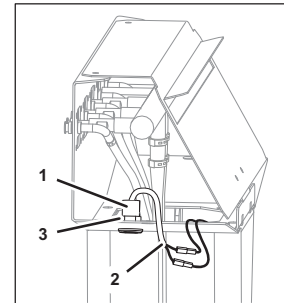


Fig. 38

#### Finishing tasks

1. Install the hood; see chapter 7.6.

## 7.10 Replacing the soda dispenser (optional)

Prerequisites		References	
The lighting kit has been removed.		see chapter 7.7	
The dispensing valves have been removed.		See dispensing valve documentation	
Spare parts	ID/reference	Qty/amount	Comment
Soda dispenser	220105610	1	5 dispensing valves
Soda dispenser	220104849	1	6 dispensing valves
Soda dispenser	220105611	1	8 dispensing valves



#### NOTICE!

Multiple soda dispenser variants are available for the unit. Replacing the soda dispenser is identical for all variants and is described here using an example.

1. Remove the clamps (Fig. 39/1) used to attach the tubes (Fig. 39/4) to the soda dispenser (Fig. 39/2).
2. Lift and remove the soda dispenser (Fig. 39/2) from the dispensing valve support (Fig. 39/3) and from the unit.
3. Position the new soda dispenser (Fig. 39/2) within the dispensing valve support (Fig. 39/3) and the unit.
4. Attach the tubes (Fig. 39/4) to the soda dispenser (Fig. 39/2) using the clamps (Fig. 39/1).

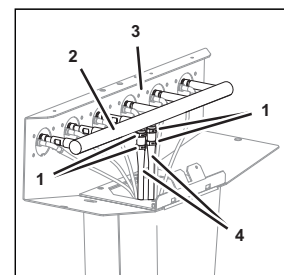


Fig. 39

#### Finishing tasks

1. Install the lighting kit; see chapter 7.7.
2. Mount the dispensing valves; see dispensing valve documentation.



## 7.11 Replacing the dispensing valve support

Prerequisites		References	
The soda dispenser (optional) has been removed.		see chapter 7.10	
Spare parts	ID/reference	Qty/amount	Comment
Dispensing valve support	Various	1	For the part number of the dispensing valve support installed on your unit, see chapter 10



### NOTICE!

Multiple dispensing valve support variants are available for the unit. Replacing the dispensing valve support is identical for all variants and is described here using an example.

- Remove the syrup tubes (Fig. 40/2) from the dispensing valve support (Fig. 40/1).  
**Only for units without a soda dispenser:** Remove the soda tubes from the dispensing valve support.

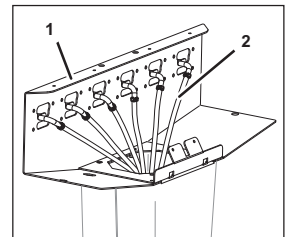


Fig. 40

- Remove the fastening bolts (Fig. 41/1) from the dispensing valve support (Fig. 41/2).

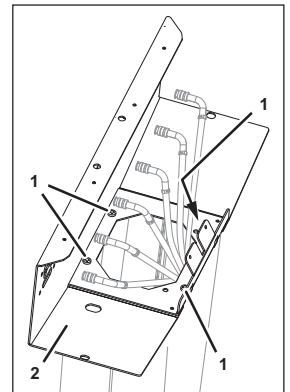


Fig. 41

- Lift the dispensing valve support (Fig. 42/1).
- Pull out the tubes and electrical cables through the opening in the dispensing valve support (Fig. 42/1) in a downward motion.
- Lift and remove the dispensing valve support (Fig. 42/1) from the stand (Fig. 42/2).
- Feed the tubes and electrical cables through the opening in the dispensing valve support (Fig. 42/1) in an upward motion.
- Position the new dispensing valve support (Fig. 42/1) on the stand (Fig. 42/2).
- Attach the dispensing valve support (Fig. 41/2) using the fastening bolts (Fig. 41/1) of the dispensing valve support.
- Position the syrup tubes (Fig. 40/2) within the dispensing valve support (Fig. 40/1).  
**Only for units without a soda dispenser:** Position the soda tubes within the dispensing valve support.

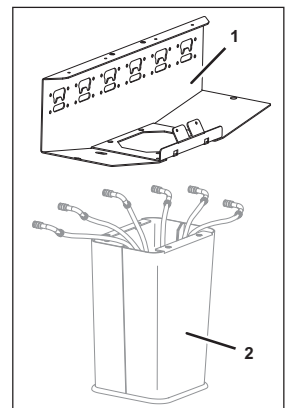


Fig. 42

### Finishing tasks

- Install the soda dispenser (optional), if required; see chapter 7.10.

## 7.12 Replacing the counter mounting kit

Prerequisites		References	
The unit has been disconnected from the power supply.		see chapter 4.1	
Spare parts	ID/reference	Qty/amount	Comment
Counter mounting kit	139403528	1	

- Remove the counter mounting kit; see chapter 5.4.
- Install the counter mounting kit; see chapter 5.3.

## 8 Commissioning/shutdown



### DANGER!

#### Risk of personal injury and equipment damage due to non-compliance with safety information!

Failure to observe the safety information will result in a risk of bringing about operating conditions at the unit, which may cause personal injury or equipment damage.

- Please always strictly observe all safety measures and information/instructions; see chapter 1.



### NOTICE!

All installation, maintenance and repair work at the unit is to be carried out by an expert only.



### WARNING!

#### Risk of personal injury and equipment damage due to operation by non-qualified staff!

It is dangerous for non-qualified staff to operate the unit!

- Service operations on this unit may only be carried out by trained and certified experts who have been trained in carrying out service operations on this unit.
- All wiring and plumbing must be carried out in compliance with national and local laws, regulations and guidelines. Non-compliance with these laws, regulations and guidelines may result in death, serious injury or equipment damage.

### 8.1 Commissioning



### NOTICE!

The following describes how the unit is put back into service by an expert following a longer shutdown period (> 24 hours).

If the unit is to be put back into operation after a temporary shutdown (< 24 hours), this may be carried out by the operator or user; see the document "Tower operator manual", document no. TD0003000.

Prerequisites		References	
The undercounter cooler has been put into service.		See the document "Undercounter cooler installation and service manual".	
The unit has been installed correctly.		see chapter 5.3	
The unit has been connected to the mains supply.		see chapter 5.3	

Required tools/materials	ID/reference	Qty/amount	Comment
Undercounter cooler installation and service manual	Document no. Various	1	
Operator manual Undercounter cooler	Document no. Various	1	
Operator manual Tower	Document no. TD0003000	1	



### NOTICE!

Maximum operating pressure of the valves is 100 PSI (689.48 kPa).

1. Turn the key switch (Fig. 43/1) to position "1".  
The unit will power up.  
If the unit does not power up, see chapter 9.
2. Clean the tubes and valves; see chapter 6.2.
3. Clean the outside of the unit; see the document "Tower operator manual", document no. TD0003000.
4. If applicable, carry out the configuration settings for the dispensing valves; see dispensing valve documentation.

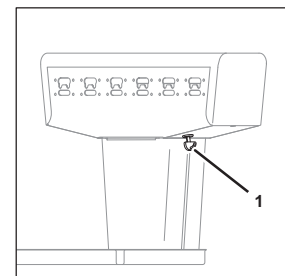


Fig. 43

## 8.2 Shutdown



### NOTICE!

The following describes how the unit is shut down by an expert for a longer period (> 24 hours). If the unit is to be shut down temporarily (< 24 hours), this may be carried out by the operator or user; see the document "Tower operator manual", document no. TD0003000.

Required tools/materials	ID/reference	Qty/amount	Comment
Operator manual Tower	Document no. TD0003000	1	
Operator manual Undercounter cooler	Document no. Various	1	

1. Clean the tubes and valves as described in chapter 6.2 up to and including step 9.
2. Drain the unit as follows:
  - a) Empty the cleaning container.
  - b) Connect the valve of the water supply; see documentation on the water system.
  - c) Keep dispensing beverages for each brand until only CO<sub>2</sub> comes out of the dispensing nozzle.
  - d) Disconnect all basic ingredient/beverage tubes of the undercounter cooler from the cleaning container.
  - e) Connect all basic ingredient/beverage tubes to the undercounter cooler; see the document "Undercounter cooler installation and service manual".
  - f) Shut down the undercounter cooler; see the document "Undercounter cooler operator manual".
3. Clean the outside of the unit; see the document "Tower operator manual", document no. TD0003000.
4. Disconnect the unit from power; see chapter 4.1.

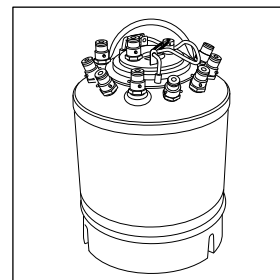


Fig. 44

## 9 Errors and malfunctions



### DANGER!

#### Risk of personal injury and equipment damage due to non-compliance with safety information!

Failure to observe the safety information will result in a risk of bringing about operating conditions at the unit, which may cause personal injury or equipment damage.

- Please always strictly observe all safety measures and information/instructions; see chapter 1.



### NOTICE!

All installation, maintenance and repair work at the unit is to be carried out by an expert only.



### WARNING!

#### Risk of personal injury and equipment damage due to operation by non-qualified staff!

It is dangerous for non-qualified staff to operate the unit!

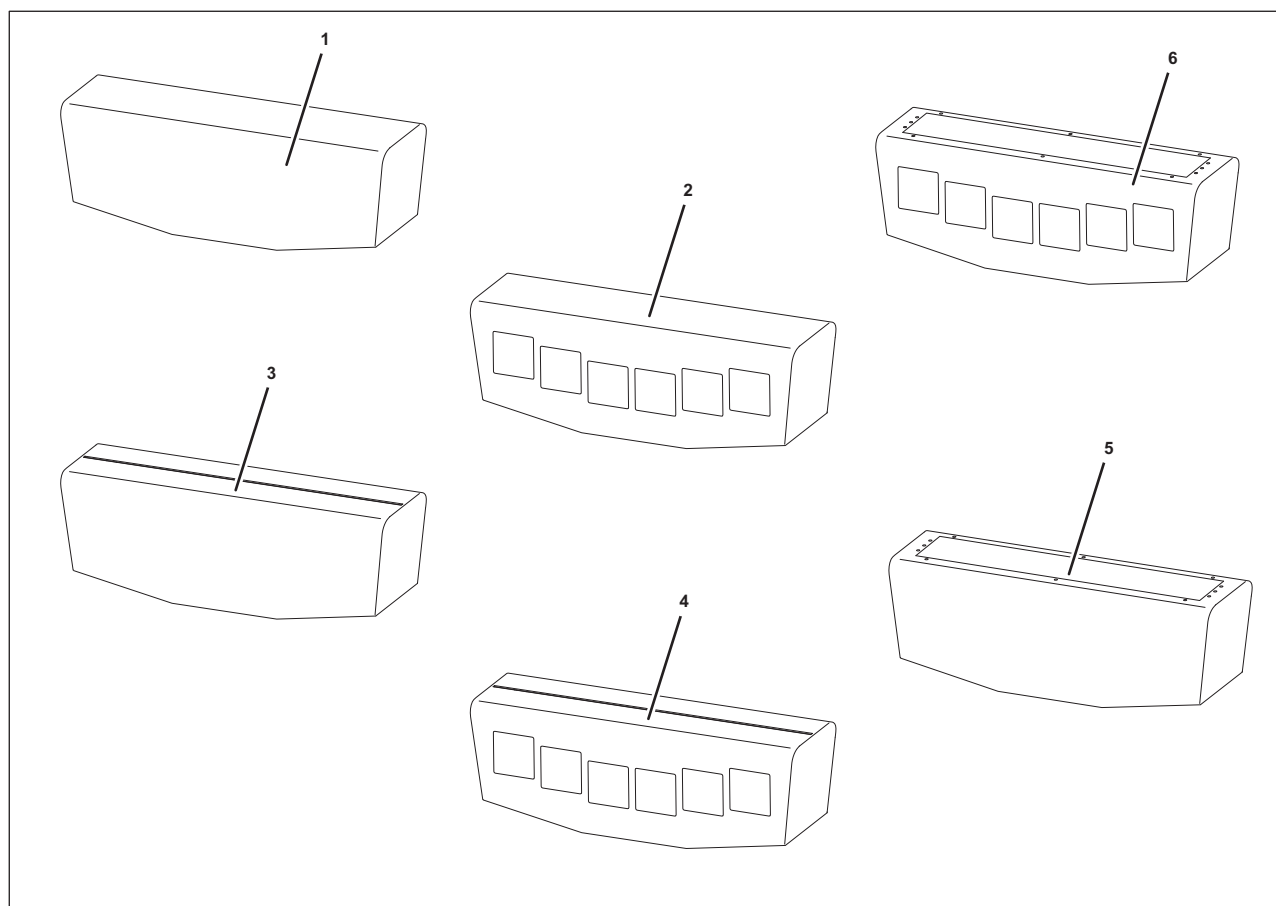
- Service operations on this unit may only be carried out by trained and certified experts who have been trained in carrying out service operations on this unit.
- All wiring and plumbing must be carried out in compliance with national and local laws, regulations and guidelines. Non-compliance with these laws, regulations and guidelines may result in death, serious injury or equipment damage.

### 9.1 Troubleshooting table

Fault	Probable cause	Remedy
Unable to dispense	No mains/power supply connected	Connect the mains/power supply; see chapter 5.3
	Tower is not switched on	Turn the key switch to position "I"; (see chapter 8.1)
	Fault or error on the dispensing valve	See dispensing valve documentation
Beverage is too warm	Fault or error on the undercounter cooler	See undercounter cooler documentation
Beverage foams for all products	Soda water is too warm	See undercounter cooler documentation
	CO <sub>2</sub> feed pressure for the soda circuit is too high on the relevant pressure-reducing valve	Adjust the CO <sub>2</sub> feed pressure to the required value (see documentation on the CO <sub>2</sub> system)
	Syrup has been stored too long and has had CO <sub>2</sub> added (stainless steel tanks only)	Connect a new syrup container (see undercounter cooler documentation)
	Contaminated tubes	Clean the tubes (see chapter 6.2)
Only soda is being dispensed	Syrup container is empty	Connect a new syrup container (see undercounter cooler documentation)
	Connections on the syrup container are not properly connected	Connect the connections on the syrup container properly (see documentation on the syrup container)
	CO <sub>2</sub> feed pressure for the syrup tube is set incorrectly on the relevant pressure-reducing valve	Adjust the CO <sub>2</sub> feed pressure to the required value (see documentation on the CO <sub>2</sub> system)
	Syrup tube is contaminated	Clean the tubes (see chapter 6.2)
	Fault or error on the undercounter cooler	See undercounter cooler documentation
	Fault or error on the dispensing valve	See dispensing valve documentation
Only syrup is being dispensed	Shut-off valve or pressure-reducing valve for the fresh water supply is closed	Open the shut-off valve and pressure-reducing valve for the fresh water supply (see documentation on the drinking water system)
	Fault or error on the undercounter cooler	See undercounter cooler documentation
Soda/syrup ratio is incorrect	Fault or error on the dispensing valve	See dispensing valve documentation
	CO <sub>2</sub> feed pressure for the syrup tube is set incorrectly on the relevant pressure-reducing valve	Adjust the CO <sub>2</sub> feed pressure to the required value (see documentation on the CO <sub>2</sub> system)
Insufficient amount of CO <sub>2</sub> in the beverage	CO <sub>2</sub> pressure for soda is set incorrectly on the relevant pressure-reducing valve	Correctly adjust the CO <sub>2</sub> pressure for soda on the relevant pressure-reducing valve (see documentation on the CO <sub>2</sub> system)
	Fault or error on the undercounter cooler	See undercounter cooler documentation
	CO <sub>2</sub> supply too low	Change the CO <sub>2</sub> bottle

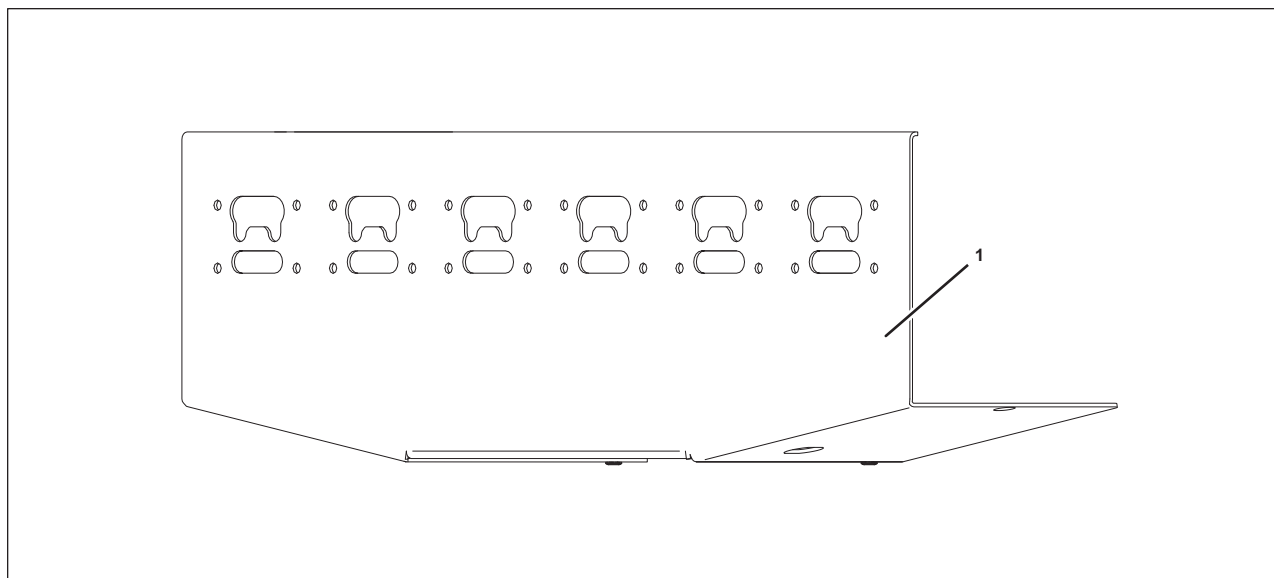
## 10 Configuration options

### 10.1 Hoods



It.	Designation	Part no.
1	Dispensing valve support hood, 5 + 6 dispensing valves, smoothed	220097066
	Dispensing valve support hood, 5 + 6 dispensing valves, polished	220097067
	Dispensing valve support hood, 8 dispensing valves, smoothed	220097106
	Dispensing valve support hood, 8 dispensing valves, polished	220097107
2	Dispensing valve support hood, 5 + 6 dispensing valves, for 6x product labels, smoothed	220097070
	Dispensing valve support hood, 5 + 6 dispensing valves, for 6x product labels, polished	220097071
	Dispensing valve support hood, 8 dispensing valves, for 8x product labels, smoothed	220097110
	Dispensing valve support hood, 8 dispensing valves, for 8x product labels, polished	220097111
3	Dispensing valve support hood, 5 + 6 dispensing valves, for moonlight disc, smoothed	220097074
	Dispensing valve support hood, 5 + 6 dispensing valves, for moonlight disc, polished	220097075
	Dispensing valve support hood, 8 dispensing valves, for moonlight disc, smoothed	220097114
	Dispensing valve support hood, 8 dispensing valves, for moonlight disc, polished	220097115
4	Dispensing valve support hood, 5 + 6 dispensing valves, for moonlight disc and 6x product labels, smoothed	220097078
	Dispensing valve support hood, 5 + 6 dispensing valves, for moonlight disc and 6x product labels, polished	220097079
	Dispensing valve support hood, 8 dispensing valves, for moonlight disc and 8x product labels, smoothed	220097118
	Dispensing valve support hood, 8 dispensing valves, for moonlight disc and 8x product labels, polished	220097119
5	Dispensing valve support hood, 5 + 6 dispensing valves, for taxi cab hood, smoothed	220097090
	Dispensing valve support hood, 5 + 6 dispensing valves, for taxi cab hood, polished	220097091
	Dispensing valve support hood, 8 dispensing valves, for taxi cab hood, smoothed	220097131
	Dispensing valve support hood, 8 dispensing valves, for taxi cab hood, polished	220097132
6	Dispensing valve support hood, 5 + 6 dispensing valves, for taxi cab hood and 6x product labels, smoothed	220097094
	Dispensing valve support hood, 5 + 6 dispensing valves, for taxi cab hood and 6x product labels, polished	220097095
	Dispensing valve support hood, 8 dispensing valves, for taxi cab hood and 8x product labels, smoothed	220097135
	Dispensing valve support hood, 8 dispensing valves, for taxi cab hood and 8x product labels, polished	220097136

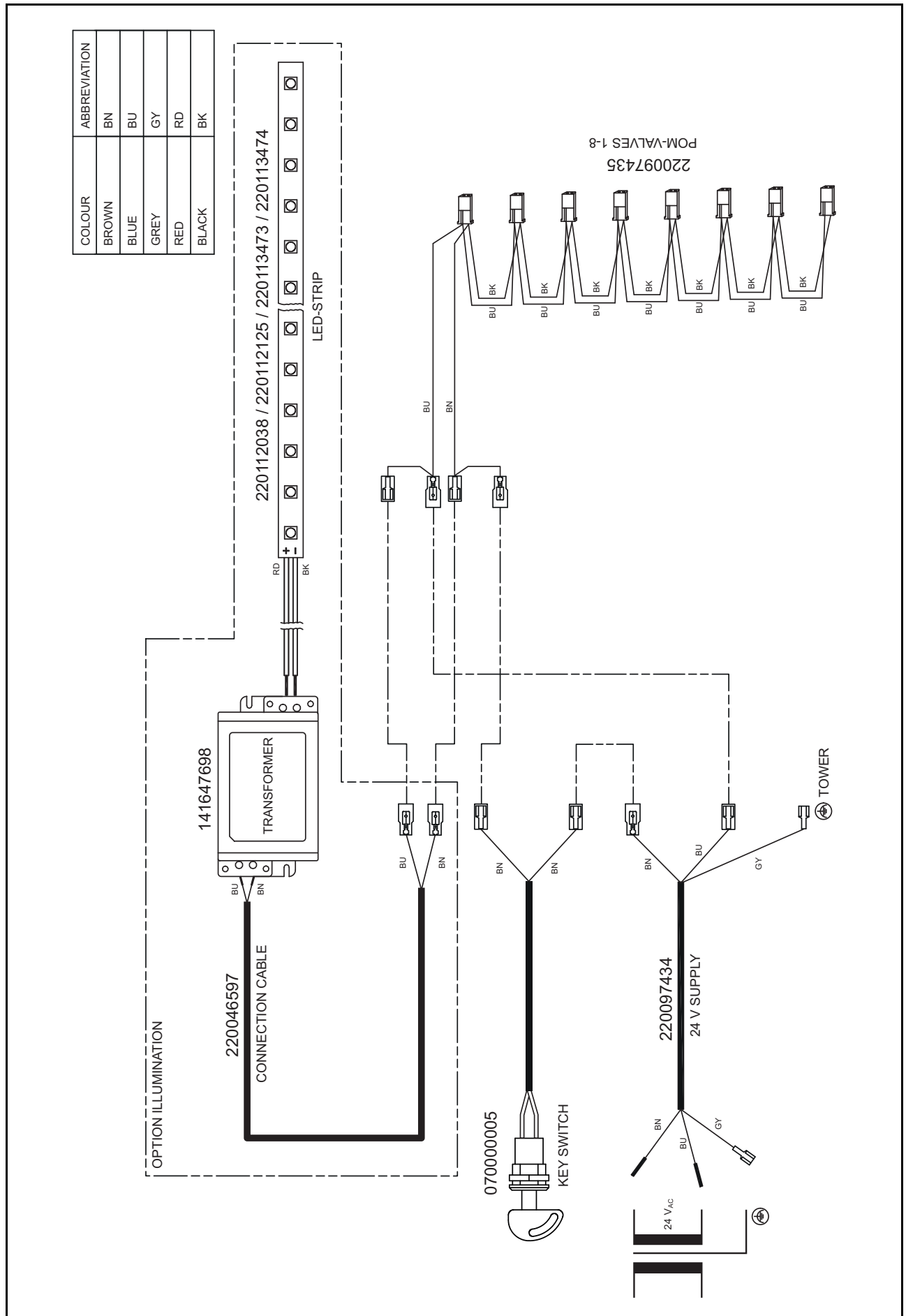
## 10.2 Dispensing valve support



Item	Designation	Part number
1	Dispensing valve support, 5x POM, polished	220115044
	Dispensing valve support, 6x POM, smoothed	220115045
	Dispensing valve support, 6x POM, polished	220115046
	Dispensing valve support, 8x POM, smoothed	220115047
	Dispensing valve support, 8x POM, polished	220115048

# 11 Applicable documents

## 11.1 Tower cable diagram





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